Early Childhood Measurement and Evaluation Tool Review

Early Childhood Measurement and Evaluation (ECME), a portfolio within CUP, produces *Early Childhood Measurement Tool Reviews* as a resource for those who conduct screening, assessment, and evaluation. To learn more about ECME and CUP, provide feedback, or to access additional reviews, visit our website at www.cup.ualberta.ca or email us at cup@ualberta.ca

Date of review: May 2012

Wechsler Nonverbal Scale of Ability [Canadian] (WNVCDN)

Measurement Areas:

The Wechsler Nonverbal Scale of Ability [Canadian edition] (WNVCDN) is designed to test nonverbal general cognitive ability in individuals ages 4 years 0 months to 21 years 11 months across several areas:

1. Matrices
2. Coding
3. Object Assembly
4. Recognition
5. Spatial Span
6. Picture Arrangement

Purpose:

The WNV is a norm-referenced tool for the assessment of nonverbal cognitive ability that can be used to measure general cognitive functioning in people who:

- are English or French language learners,
- have language-based learning disabilities, language disorders, or speech impairments,
- are from diverse cultural or linguistic backgrounds,
- are deaf or hard of hearing,
- are being assessed for intellectual giftedness,
- are being assessed for intellectual disability, and
- have an autistic disorder, or selective mutism.

Length and Structure:

The WNV is designed to assess individual children and young adults. Administration time depends upon the age category the child falls into as well as whether the 'short' or 'full' battery of the WNV is being used. According to the Administration and Scoring Manual, the short battery should take approximately 20 minutes to complete, and the full battery takes approximately 45 minutes to complete.

A18

Several of the subtests have age-based start/finish, reversal, and timing rules that typically allow the examiner to reduce the amount of time spent testing. The age category that the individual falls into will determine which subtests they will complete in both the short and the full batteries:

4 years 0 months – 7 years 11 months
Children in this age group who take the full battery must complete 4 subtests: Matrices, Coding, Object Assembly, and Recognition. The short battery consists of only two subtests: Matrices and Recognition.

8 years 0 months – 21 years 11 months
Individuals who fall into this age group who take the full battery must complete 4 subtests: Matrices, Coding, Spatial Span, and Picture Arrangement. The short battery consists of two subtests: Matrices and Spatial Span. Optional scores such as Spatial Span Forward (SSpF), Spatial Span Backward (SSpB), Longest Spatial Span Forward (LSSpF), and Longest Spatial Span Backward (LSSpB) can be calculated from the Spatial Span subtest for this age group. The number of items in each subtest varies depending upon age group; item score ranges differ for each subtest. Based on the raw scores from the subtests, the scorer can derive subtest *T*-scores, Full Scale *T*-scores, percentile ranks, test age-equivalents, and score plots.

Materials:
The publisher classifies the WNV as a "Level C" qualification that is targeted to institutions with personnel possessing masters or doctorates of psychology or education, and/or have licensure in a relevant area of assessment with one of the following provincial or national organizations: the Canadian Psychological Association (CPA), the Canadian Register of Health Service Providers in Psychology (CRHSPP), the Canadian Association of School Psychologists (CASP), and the American Psychological Association (APA).

The WNVCDN Complete Kit is sold by the publisher for CDN $1048.00, and includes the administration and scoring manual, the technical and interpretive manual, 25 record forms (for each age group), 25 response booklets, and other assorted stimuli and manipulatives. Scoring assistant software (Windows CD-ROM) is also included in the price. Additional record forms and response booklet packs are available from the publisher.

Accessibility:
The WNV kit is available in the English language, with norms available for American and Canadian populations. According to the manual, the WNV is designed to minimize the necessity of English-language proficiency in examinees and subsequently can be used with a variety of populations (see Purpose section for details). The manual also includes a short section on special considerations for testing Canadian populations.

Administration, Scoring, and Interpretation:
The WNVCDN Technical and Interpretive manual suggests that the test examiners and scorers have (at minimum) technical training in test administration. Individuals with formal graduate-level or professional training in psychological assessment should interpret test results using the step-by-step method described in the manual. The test is moderately easy to administer, easy to

score, and moderately difficult to interpret based on the interpretation guide in the manual, education, and professional experience.

Subscales:
There are no subscales on the WNV.

Documentation:
The WNV Administration and Scoring Manual provide specific procedures for test administrators and scorers. The [Canadian] Technical and Interpretive Manual has comprehensive chapters on interpretation, test standardization, norm development, validity and reliability.

Norming Sample:
Note: The following information pertains only to the Canadian edition of the WNV
The WNVCDN was normed and standardized using a Canadian sample of 875 primarily English-speaking individuals (50% Female, 50% Male) ages 4 years 0 months to 21 years 11 months. The sample was stratified according to demographic variables such as age group, sex, race/ethnicity, parent education level and geographic region. According to the authors, 1% of the sample consisted of individuals who were identified as intellectually gifted or diagnosed with mental retardation. Nearly 4% of the sample were "children with various learning and attentional disorders who were attending regular education classes." The authors maintain that a close correspondence was kept between the sample's demographics and demographic information based on the 2001 Canadian Census. It should be noted that three northern Canadian regions (Yukon Territory, Northwest Territories and Nunavut) were not included in the sample. Furthermore, the majority of the sample was obtained from urban environments in Canada.

The authors do not qualify the definition of "First Nations" used in the manual (i.e., whether it included Métis, Inuit, etc). The manual contains a detailed report of the sample's demographic information, including comparisons of U.S. and Canadian norms.

Reliability:
Note: The following information pertains only to the Canadian edition of the WNV
The WNV manual discusses four kinds of reliability measures:

Internal Consistency: A split-half reliability test determined the reliability of scores for two halves of the test using the standardization sample's data. According to the manual, average reliabilities for the subtests fell between .73 and .90, and the average full scale scores for short and full batteries were between .91 and .90 respectively.

Test-retest Reliability: An American sample of 164 examinees was tested with the WNV twice in a 2-7 week interval. The test-retest reliabilities were calculated, and yielded correlations in the .70s and .80s for both subtest scores and full scale scores.

Standard Error of Measurement and Confidence Intervals: The manual also discusses the degree to which measurement error should contribute to an individual's observed score. According to the manual, if a Canadian child has a full battery Full Scale score of 113, their "true score" should fall between 103 and 120 points at a 95% confidence interval.

Interscorer Reliability: According to the manual, over 3,000 test cases (using both the Canadian and U.S. normative samples) were scored by two interdependent scorers, yielding score correlations of .88 to 1.00 across all sub-tests. According to the manual, if a Canadian child has a full battery Full Scale score of 113, their "true score" should fall between 103 and 120 points at a 95% confidence interval.

Validity:
Note: The following information pertains only to the American edition of the WNV

Construct and Convergent Validity: The authors discuss several comparison studies that were made between the WNV and other related measurement tools. The first study compared correlations between WPPSI-III scores and WNV scores using an American sample of 57 examinees ages 4-5. An analysis showed that the full and short battery WNV Full Scale scores were correlated with the WPPSI-III FSIQ at .71 and .67 respectively. Correlations between related subtests (e.g., Coding) fell between .50 and .54. A second study examined the WNV's relation to the WISC-IV using an American sample of 102 examinees ages 7-16. According to the authors, the full and short battery WNV Full Scale scores were correlated with the WISC-IV at .76 and .58 respectively. Correlations between related subtests (e.g., WNV Matrices and WISC-IV Matrix Reasoning) were at .51 and .78.

A comparison was also made between the WNV and the WAIS-III using an American sample of 45 examinees aged 16-21. Similar to previous studies, the correlation between WNV Full Scale scores and WAIS-III FSIQ (for both short and full batteries) was at .72 and .57 respectively. Correlations between their related subtests fell between .57 and .67. An American sample of 79 examinees ages 5-17 were also tested using the WNV and the Universal Nonverbal Intelligence Test, yielding an average correlation between Full Scale score and FSIQ of .73 and .62 for the full and short batteries respectively.

Special Populations: The authors considered the validity of the tool for special populations such as individuals with various forms of intellectual disabilities, language disorders, and those deaf or hard of hearing. In general, those with language-related disorders did in fact perform significantly poorer on the WNV than those in control groups, however the authors argue that these effects are minimized compared to other cognitive ability tests such as the WISC-IV. English-language learners and individuals who were deaf or hard of hearing matched for performance with their control groups, suggesting that the WNV is valid for those groups.

Publication Information:
This review is based on the 1st edition of the Wechsler Nonverbal Scale of Ability: Canadian published in 2006 by Harcourt Assessment.

References:
Publisher's website: www.harcourtassessment.ca

WNVCDN Administration and Scoring Manual. (2006). Toronto, ON: Harcourt Assessment.

Wechsler, D., & Naglieri, J.A. (2006). *WNVCDN Administration and Scoring Manual.* Toronto, ON: Harcourt Assessment.

Wechsler, D., & Naglieri, J.A. (2006). *WNVCDN Technical and Interpretive Manual.* Toronto, ON: Harcourt Assessment.

How to cite this document: This document was created for CUP. However to cite this document use the following:

Community-University Partnership for the Study of Children, Youth, and Families (2011). *Review of the Wechsler Nonverbal Scale of Ability [Canadian] (WNVCDN).* Edmonton, Alberta, Canada.